

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM5964-4A

FEATURES:

- HIGH POWER
P_{1dB} = 36.5 dBm at 5.9 GHz to 6.4 GHz
- BROAD BAND INTERNALLY MATCHED
- HIGH GAIN
G_{1dB} = 8.5 dB at 5.9 GHz to 6.4 GHz
- HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1 dB Compression Point	P _{1dB}	V _{DS} = 10V f = 5.9~6.4GHz	dBm	36.0	36.5	-
Power Gain at 1 dB Compression Point	G _{1dB}		dB	8.0	8.5	-
Drain Current	I _{DS}		A	-	1.1	1.5
Power Added Efficiency	η _{add}		%	-	35	-
Channel Temperature Rise	ΔT _{ch}	V _{DS} × I _{DS} × R _{th(c-c)}	°C	-	-	80

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Trans-conductance	gm	V _{DS} = 3V I _{DS} = 1.5A	ms	-	900	-
Pinch-off Voltage	V _{GSoff}	V _{DS} = 3V I _{DS} = 20mA	V	-2.0	-3.5	-5.0
Saturated Drain Current	I _{DSS}	V _{DS} = 3V V _{GS} = 0V	A	-	2.9	3.8
Gate-Source Breakdown Voltage	V _{GS0}	I _{GS} = -60 μA	V	-5	-	-
Thermal Resistance	R _{th(c-c)}	Channel to Case	°C/W	-	4.0	6.0

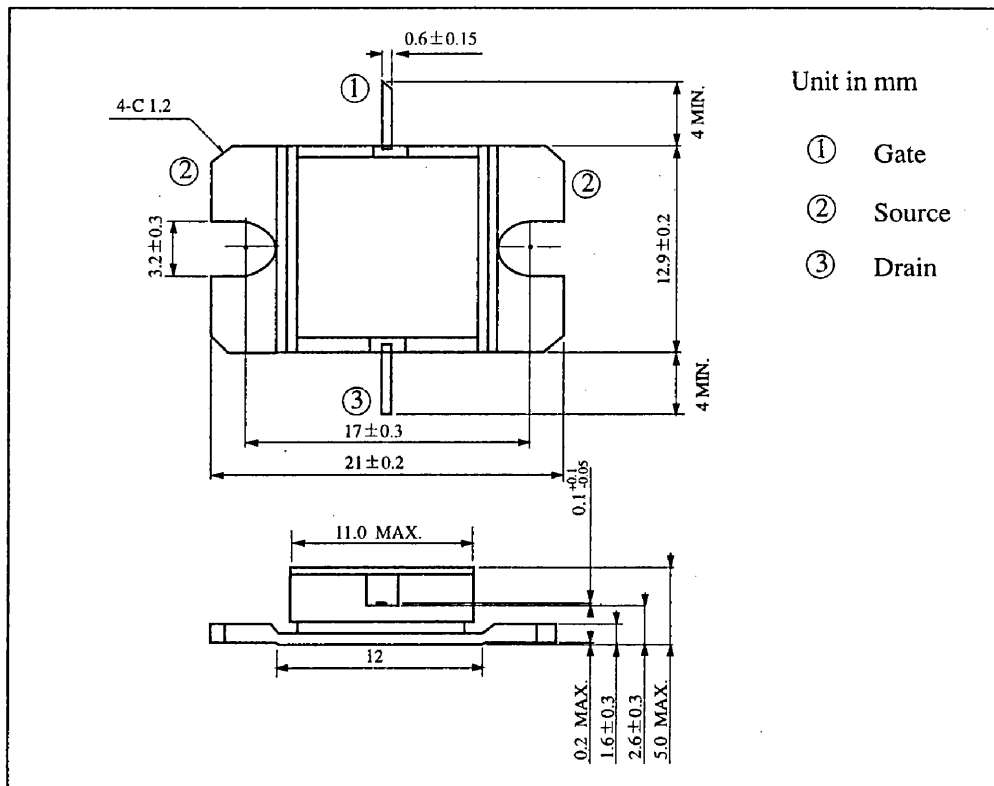
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TIM5964-4A

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	UNIT	RATING
Drain=Source Voltage	V _{DS}	V	15
Gate=Source Voltage	V _{GS}	V	-5
Drain Current	I _{DS}	A	4
Total Power Dissipation (T _c =25°C)	P _T	W	20
Channel Temperature	T _{ch}	°C	175
Storage Temperature	T _{stg}	°C	-65~175

PACKAGE OUTLINE (2-11D1B)



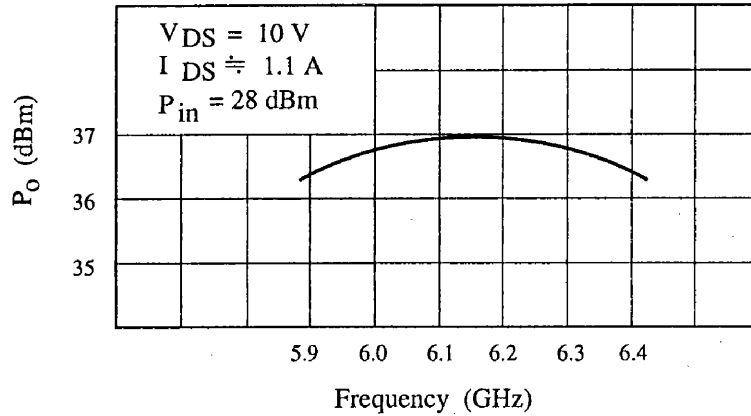
HANDLING PRECAUTIONS FOR PACKAGED TYPE

Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

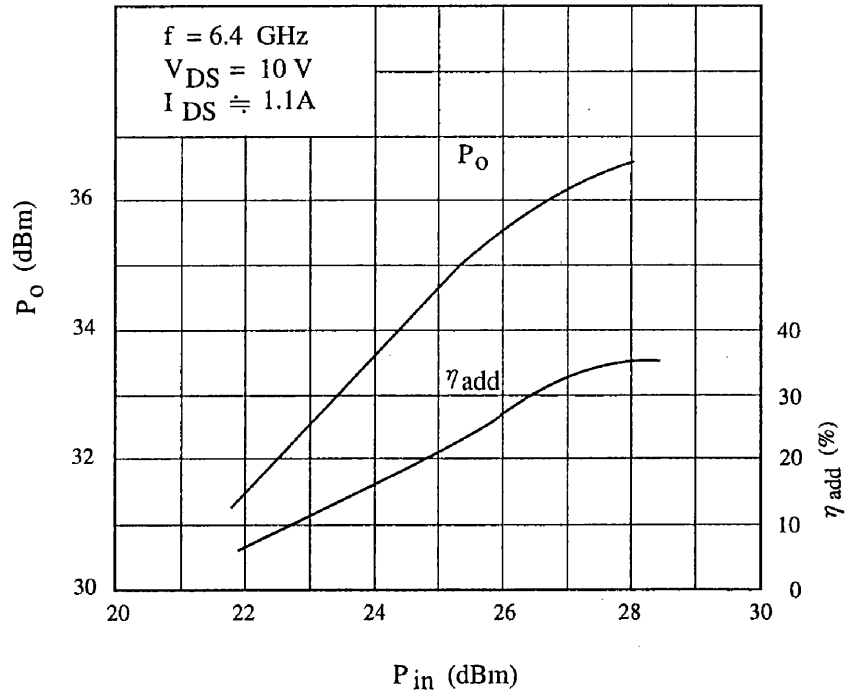
TIM5964-4A

RF PERFORMANCES

Output Power vs. Frequency

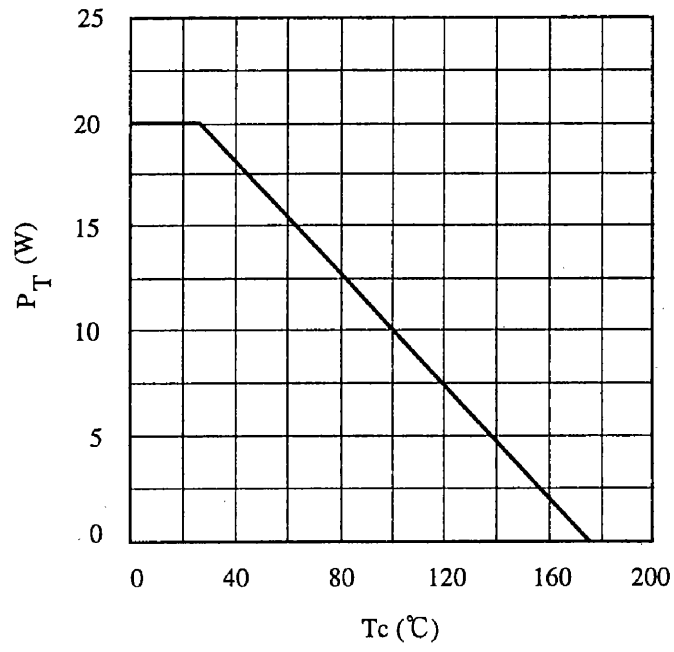


Output Power vs. Input Power



TIM5964-4A

POWER DISSIPATION VS. CASE TEMPERATURE

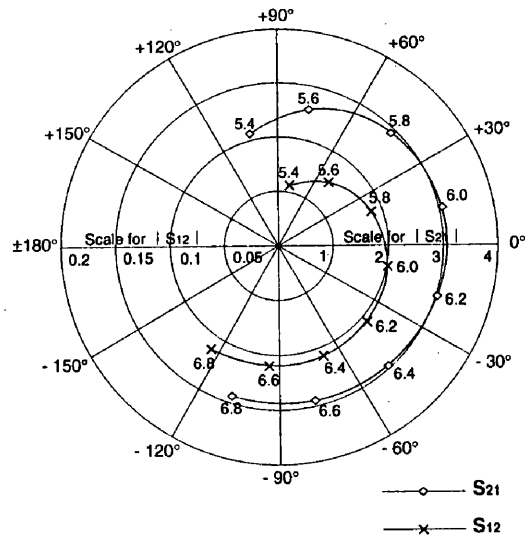
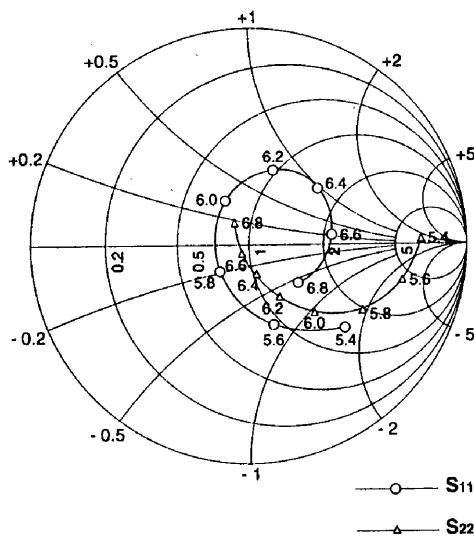


TIM5964-4A

TIM5964-4A S-PARAMETERS (MAGN.and ANGLES)

$V_{DS} = 10V, I_{DS} = 1.1A$

$f = 5.4 \sim 6.8GHz$



FREQUENCY (GHz)	S_{11}		S_{21}		S_{12}		S_{22}	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.4	0.58	-41	2.12	104	0.056	79	0.79	2
5.6	0.38	-73	2.56	77	0.074	51	0.72	-13
5.8	0.18	-138	2.91	45	0.090	20	0.60	-30
6.0	0.23	118	3.06	13	0.101	-11	0.43	-46
6.2	0.36	72	3.03	-18	0.106	-41	0.28	-60
6.4	0.41	39	2.95	-48	0.108	-68	0.14	-76
6.6	0.38	7	2.89	-77	0.110	-95	0.05	-129
6.8	0.28	-38	2.87	-108	0.113	-124	0.12	123